ABSTRACT

A method for determining vibration amplitude limits of a mechanical device. The method comprises identifying a mechanical device and a frequency range for a spectrum to be analyzed, retrieving vibration spectra comprising individual spectrum for the mechanical device and the frequency range, calculating frequency for the individual spectrum, and identifying the individual spectrum with the smallest number of frequency lines. In addition, the method comprises calculating noise bandwidths and a largest noise bandwidth, removing outlier data, calculating conditional kernel density, and calculating vibration amplitude limits to detect faults in the mechanical device.